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A study of a gas discharge with a liquid electrolyte cathode near its critical thermal modes

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Abstract

A gas discharge between the liquid electrolyte cathode and a metal anode at currents experimentally has been studied at the atmospheric pressure in the range of 1-10 A. Consideration was given to the thermal conditions of the cathode, wherein the electrolyte temperature is close to the boiling point. It is shown that such critical modes of heat losses at the cathode are almost completely formed at the expense of Joule heat inside the electrolyte. The conditions to minimize heat losses to the liquid electrolyte cathode were analyzed.

Keywords

Contact glow discharge electrolysis, Electrolyte cathode, Gas discharge, Liquid electrode, Mass carryover of electrolyte